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Journal of the Amateur Photographic Society of Madras

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EDITORIAL NOTES.

AT last we are able to announce the long delayed arrival of our illustrations. We issue two with this number, one of which, "An Interesting Story," belongs to last number and is there described. The title page and index of last volume are also issued with this number.

WE have for long been aware that the people of the other Presidencies looked upon Madras as a very backward and out-of-the-way place, but it was a surprise to learn that sor[illegible] of them thought Madras was actually a forei[illegible] country. Yet this is the only explanation th[illegible] can given for the fact that we recently receiv[illegible] a communication from a Calcutta contempora[illegible] written on a *foreign* post-card. This beats eve[illegible] some of the *Pi's* recent attempts at Madr[illegible] geography.

OUR readers may remember that, from tim[illegible] to time, during the past two years report[illegible] have appeared of a wonderful discovery i[illegible] colour photography made by Mr. John Wallac[illegible] Bennetto of Newquay, Cornwall. Some ver[illegible] good transparencies prepared by Mr. Bennett[illegible] were exhibited some time ago at the Society [illegible] Arts and at the Camera Club, but no infor[illegible]mation was forthcoming as to the manner i[illegible] which they had been produced, nor were th[illegible] transparencies allowed to be handled or closel[illegible] inspected. The process employed has now bee[illegible] made public and turns out to be only a parti[illegible]cular form of the three colour process in whic[illegible] what is new seems to be of very doubtful valu[illegible]

THREE negatives are taken simultaneous[illegible] with the same lens in the following m[illegible] The first negative is taken on a red [illegible] plate carried in the usual dark s[illegible]

of the camera, but the light before reach- his plate falls on a sheet of red glass placed n angle of 45° to the axis of the lens. Part ne light is reflected upwards by this plate falls on two sensitive plates placed face to face second dark slide on the top of the camera. lower of these two plates is coated with a sparent emulsion sensitive to blue rays and upper plate is sensitive to green rays. That the blue sensitive plate is made to act as a it filter to the green sensitive plate—a device ich must add seriously to the difficulty of ting satisfactory results. In case, however, this not being sufficient, the inventor states in e specification of the patent that "the two ates or films may have a thin greenish yellow m interposed between them, this film acting as creen for the upper plate or film." It will be ticed that the arrangement of the three plates such that one of them receives an impression hich is reversed relatively to the other two.

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THE following are the "claims" made in the patent:—

"1. A photographic camera, having a air of dark slides situated the one at the end, he other on the top, and an inclined red glass, he slides and glass being so situated that some f the rays of light from the objective can pass hrough the red glass and act on a sensitized ilm or plate in the slide at the end, and that ome of the rays can be reflected so as to act n two sensitized films or plates on the top lide.

"2. The herein described process for pro- lucing coloured photographs consisting of the ollowing steps of operations:—First, simul- aneously taking three negatives, one resulting rom rays passed through a red glass, the other two resulting from rays reflected from the glass, and one of the two being affected as if by blue rays, the other as if by green rays. Secondly, photographically printing positives from the negatives on differently coloured bands of sensi- ized film, forming a coating on paper. Thirdly, eparating the films from the paper and deve- oping the positives, and finally superposing the hree films on one another."

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regards the printing process employed, we not do better than quote Mr. Bennetto's t:—

"In order to produce the positives, I pro- ceed as follows: I first prepare three pigments, a red (such as scarlet or vermillion), a blue (such as cobalt), and a yellow (such as chrome yellow), grinding them very fine, and mixing them with gelatine or other vehicle, such as is employed in the preparation of what is common- ly known as carbon tissue. I coat bands of paper of suitable widths with the three pigments.

"Having sensitized these bands with bichromate of potash, I cut off lengths, each about equal to the height of the intended picture, and I place these in a printing frame with the three negatives, each on its appropriate coloured band, that is to say, the negative affected by the red rays on the blue band, the negative affected by green on the red band, and the negative affected by blue on the yellow band. After sufficient exposure, the papers are placed in cold water, and mounted in contact with a thin, transparent, flexible strip or film, which may be of prepared gelatine, celluloid, or the like, and the positives are developed in warm or hot water, the paper being stripped off and the positives being left on the film as in the known process of carbon printing. When the positives are dry, they are preferably coated with adhesive cement, and the three are placed together, the two side positives of the one band are on each side of that of the other band in correct register and subjected to pressure till the cement is set.

"Or two of the positives, one being inverted relatively to the other one, are trans- ferred to, and developed on, glass plates, the third being developed on a thin film. The two glass plates are put together with the positives on them face to face and the film positive between them. The whole is subjected to pressure and has its edges bound with adhesive paper or fabric."

FROM a letter of Mr. Bennetto's in the *British Journal of Photography*, we learn that the process which has been now patented is not the one which he some time ago described as a "jewel," but that we may have some time yet to wait for this more perfect process. We can wait with a considerable amount of patience.

THE Xmas issue of *The Photogram* is a particularly good number of an admirable publication. The most striking feature of the

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number in some respects is the reproduction in two supplements of Signor Pia's photograph of "The Holy Shroud of Turin," of which so much has been heard recently. The larger supplement is 20 in. by 5½ in., and is intended for framing. "The Holy Shroud has been preserved for centuries in Turin, is now in the Chapel Royal of Turin Cathedral, and is believed to be the veritable shroud in which the body of Christ, after the descent from the cross, was wrapped by Joseph of Arimathea. When solemnly exposed on May 25th last, the shroud was photographed by Signor Secondo Pia, a lawyer of Turin, who was surprised to find the negative show a distinct face and figure, which have been described by the Paris *Univers* as follows :—'Nothing is more attractive than the countenance, truly divine, striking in its beauty and sweetness, its majesty and love, even in death.'

The large reproduction in *The Photogram* shows the shroud as it appears, with the distinct impress of the front and of the back of the body. The smaller (full-page) reproduction shows the face and front of the body as it would appear on Sinor Pia's negative.

Amongst other articles we may call attention to "Doomed or Threatened," which directs attention to the many objects of historical interest and natural beauty which are threatened with destruction, and calls upon photographers to resist, where possible, the destruction, or, failing this possibility, to faithfully record the scene.

A tribute to "The late Mr. Gleeson White," who was a frequent contributor to *The Photogram* and the writer of its annual volume, "Photograms of the Year," is paid in an obituary notice of four pages.

"Hand-Camera Work in Winter" is shown, by Paul Martin, to be both possible and enjoyable. His article is illustrated with eight examples.

REVIEWS.

Photograms of '98, like its predecessors, is an interesting volume worthy of a place in every photographer's library. The volume contains notices of all the chief photographs that have been exhibited during the year and over one hundred reproductions from these pictures. The collection is, of course, int to meet all tastes, and those who believe school chiefly represented at the "Salon find pictures of that class, though, a w glad to see, what we consider the hea form of picture is more common. The picture from this part of the world is a r duction of Mr. Dunsterville's "Shrine i Jain Temple, Mount Abu," which is desc as "a most excellent transcript of a singu ornate and wonderful specimen of In architecture, that by its quality as a p recalls some of the best British Architect Photography." Those who know the pic will certainly not consider this praise too h The reproduction, though good of its kind, f somewhat in rendering the minute delicacy the tracery in the original, but no pro block of the kind employed is able to reprod accurately a picture so full of details. H hopelessly divergent our views are from th of some other critics, as regards certain of pictures in this volume, will appear when state that the two pictures chosen by one the home illustrated papers for special comm dation and reproduction seem to us two of t worst in the whole volume. One of them, R. le Bégue, of a semi-nude figure holding lyre over her head, appeals to us only as bei one of the ugliest and most inartistic pictur that we have seen for a very long time. Tak as a whole, however, the collection strikes us being exceedingly good, and as it can be pu chased for 1/- it ought to command a large sal

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WE have received a copy of Messrs. Babaje Sakharam & Co.'s "Price List of Photo graphic Apparatus and Materials, Artists Colours and other requisites," and we must con fess that the first effect of glancing through it was to make us wish to sit down and write a large order for apparatus which it seemed we could no longer do without. Without wishing in any way to cast reflections on our local dealers, we must say that the present list surprises us both by the variety of the articles offered and by the low prices at which they are sold. Apparently the list is quite up to date, as we find it contains even persulphate of ammonia. There is one question which we would, howeve like to ask. What is "platinum salt"? evidently not the bi-chloride and th nothing to show which of the other

Almanac and Annual of the *Optical Magic Lantern Journal and Photographic Enlarger*, by Mr. J. Hay Taylor, will be found to n many articles interesting to those who with the lantern. The number of these very great here, chiefly on account of the lty which is experienced in getting a good light, strong enough to show slides fairly large scale. Lime light and electric are usually both out of the question here, the heat produced by a really powerful sine lamp makes the projection of lantern s most unpleasant work except in the cold ther. Now, however, there seems to be a l prospect that acetylene gas will, before , be made use of in lanterns without either or difficulty. We reprint amongst our racts a paper on this subject taken from the nanac which is worthy of the careful atten- of any one who proposes to use acetylene. addition to the articles on lantern subjects, Almanac contains a most useful collection photographic formulæ. The price is two illings.

OUR ILLUSTRATION.

The Irrawaddy in Flood.

Our illustration this month is by Mrs. cNair whose excellent work is so well-known our members. Mrs. McNair gives the follow- g account of the picture.

"The frontispiece depicts one of the many retty scenes to be found at Sagaing on the rrawaddy. Here the river always looks broad nd full, but the actual channel for steamers is arrow and tortuous, except at flood times, hen the river sweeps along at the rate of 7 or miles an hour, and floods its banks, as in the picture. This, however, does not trouble the Burman as his house is built on piles, and as all seem able to swim as easily as walk, he is not kept a prisoner, should the family boat be bsent. Once when I was being taken straight across country, in a country boat, just able to sit up under the round mat top and look ahead of me, with the boat scraping over inequalities of the ground, and the mat top in danger of being dragged off by the boughs of trees under which we were gliding,—we came suddenly on arge open space with a submerged village t was a funny sight to see the cattle, p on bamboo shelters calmly chewing infants playing on the rickety open verandahs, and children, little bigger than infants, paddling themselves about on diminutive rafts or boats, all as happy as possible in the watery waste. Marketing too was going on,—one Burman maiden from a boat bargaining with another perched up in her verandah. The sanitary arrangements of the Burman are not superior to those of the natives of India, so these yearly floodings have a grand cleansing effect on the villages, at any rate on the banks of rivers, where the current is strong, and no sooner does the river begin to recede than the banks are planted out with paddy, and the submerged islands become green with tobacco and other crops."

OUR HOME LETTER.

November 28th, 1898.

In his work on "Imagination in Landscape Painting," Philip Gilbert Hamerton says that he finds it impossible to resist the conclusion that composition is far more an art of taste, culture, and the knowledge of what has already been done, than an act of imaginative genius. If this be so, photographers who do not feel particularly talented may take hope, study and application will enable them to achieve proficiency in pictorial work. If indirect proof of the truth of this statement were needed, one might point to the steadily increasing ranks of photographers devoting themselves to pictorial art. At home here the tide is still flowing; in the clubs and among photographic circles the question as to whether or no photography is an art is now seldom debated, but its place has been taken by discussions on the relative merits of different men's productions, looked at from the artistic point of view. This does not mean that other applications of photography, topographical among the number, are being lost sight of, but even that division has received some benefit from the changing condition of things; and light and shade, point of view, etc., are much more important considerations on the part of the surveying photographer than they used to be.

Talking of photographic surveys and pictures illustrating travel, those who have occasion to tramp long distances carrying their apparatus themselves will be interested in any arrangement which contributes to convenience in carrying. I have recently recommended that the ordinary camera bag be discarded in favour of the Alpine rücksack, since with the latter anyone of moderate physical calibre can comfortably carry a half plate camera and three or six slides for a long day's walk without undue fatigue, while the narrow, chest-constricting strap of the present form becomes uncomfortable in a very short space of time. I have described the construction of the rücksack in the December issue of *The Practical Photographer*, but may say here for the benefit of those who may not see the article referred to that the rücksack, as its

name implies, is just a sack, which when it is empty collapses completely. It is made of waterproof tent cloth with an inner lining of thin waterproof. At the top, holes are pierced, through them a cord is run, and drawn up in the same manner as a lady's workbag. A carrying strap is attached to the top and to the two bottom sides of the bag. The bag when in *situ* lies on the small of the back, the straps pass round the shoulders, and the chest is left absolutely free. In order to keep the camera, slides, and other appurtenances from rubbing one against another, they should be put in the first instance, before being placed in the bag, in cloth-lined tight fitting boxes. Such a bag should be uncommonly useful in India, where probably the facilities for conveyance by rail or road are comparatively small, and the photographer no doubt is often compelled to leave the beaten track.*

There have been no important events during the past month, but I might mention that the Royal Photographic Society have decided to remove to a much larger establishment in Russell Square not far from King's Cross and St. Pancras stations. Here the accommodation will be about twice as great as at the present rooms in Hanover Square. The change is likely to be highly appreciated.

MATTHEW SURFACE.

* Fortunately the coolie exists in India and few Photographers are compelled to carry their own apparatus when on a photographic excursion.—*Ed.*

PROCEEDINGS OF THE SOCIETY.

Monthly Meeting held at the Masonic Hall, Mount Road.

Friday, 2nd December, 1898.

MR. C. MICHIE SMITH, *President*, in the chair.

PICTURES FOR THE DAY.

Photographs of "Sunrise or Sunset" were exhibited by Surgeon-General Sibthorpe. The President exhibited a series of photographs which were not for competition.

NEXT MEETING.

The Annual Meeting of the Society will be held on Friday, 6th January 1899, when a good attendance of members is requested.

EXTRACTS.

Improving Defective Negatives.

BY OSBORN THORNBERY.

1.—FOG.

MANY negatives are thrown away by amateurs because they are defective, and they do not know how to treat the defects to remedy them. Having devoted a good deal of time in experimenting to find the best methods to prevent and cure defects in negatives, I give my experience.

I find that many negatives are wrongly treated by amateurs. Thus, when they have a negative which has a general fog all over, they treat it as a thin, flat negative and intensify it, making the fog thicker, instead of clearing it. Fog is one of the greatest evils that photographers have to contend against. There are two kinds of fog—plain fog and coloured fog. The former is caused by some white light (other than that which enters the camera by the lens) affecting the plate, and the latter by the developer fogging the plate. Both these fogs may be entirely removed, provided the following methods are used according to the kind of fog. The first kind of fog may be prevented by carefully examining the camera. This may be done by taking the camera out in a strong light, place the cap over the lens, and look through, having well covered your head with the focussing cloth, so as to exclude all light from the back. If any white light comes through the bellows or any other parts of the camera, they should be stopped. I find a good plan is to cover the pinholes in the camera with black strips of gum-paper, as used for binding lantern slides. Another frequent source of fogging arises from the blacking being worn off the inside parts of the camera and the lens tube. This should be renovated at least once a year. An excellent dead black suitable for coating the inside of the camera and lens can be made as follow:—Dissolve shellac in methylated spirit, and add dry lamp-black till the mixture is the consistency of thin cream. It should b[e] applied with a small camel-hair brush. Too much shellac must not be used, or the dead-black will dry with a polish. Other sources of fogging are:—White light getting in the dark-room, and the ruby lamp not being safe. These may be tested by placing a plate in the dark slide and drawing the shutter half-way, thus leaving part of the plate exposed. If on developing the plate there is [a] difference between the two parts, either the lamp or t[he] room will be found at fault. Light which comes throug[h] the door or other parts should be stopped. A good plan is to have a strip of red flannel tacked all round the edge of the door. This will keep out both light and draughts.

Now, as to plates that have been fogged. These may be cured by placing in a slow-acting reducing solution. A very good formula is:—

Sulphuric acid	1½ scr.
Hyposulphite of soda	8 oz.
Sulphite of soda	1 oz.
Chrome alum	3 drm.
Warm water	32 oz.

Dissolve the hyposulphite of soda in 14 oz. of the water, the sulphite of soda in 3 oz. of water, mix the sulphuric acid with 2 oz. water, and pour slowly into the sulphite of soda solution, add the hyposulphite, and then dissolve the chrome alum in 8 oz. of water, and add to the rest. The solution, when cold, is ready for use. The fogged negative should be placed in this solution, and left till the shadows are clear. It should then be taken out and washed.

Another good formula, which is also a reducer, is known as Belitzski's green reducer:—

Potassium ferric oxalate	2½ drm.
Water	7 oz.

When this is dissolved add crystallized neutral sulphite of sodium, 2 drams; oxalic acid, 40 gr.; hyposulphite o[f] soda, 1½ oz. This reducer must be kept in the da[rk] the light affects it and renders it useless. If [well] corked, it will keep for a long time, and [may be used] over and over again till exhausted. Th[e]

be kept in this till clear, then removed and washed. Green, yellow, and red fog must be treated differently, as reduction will not touch the fog, as it is caused by a peculiar condition of the reduced silver; therefore it is advisable to change this latter into silver bromide, and redevelop it. If the negative is stained by the oxidation of the developer, it cannot be removed by this method, but must be treated by another which will be described under "Stains." The negative to be treated for coloured fog should be placed in a dish of clean water, so as to thoroughly soften the film, then place in—

Bromide of soda	1 drm. 15 gr.
Bromide	2 scr. 5 gr.
Water	$3\frac{1}{2}$ oz.

When thoroughly mixed place the negative in the dish, film side up, and pour the solution over and well rock. This must be done in the open-air, as the fumes from it are very obnoxious. The negative should remain in this bath till it is white right through to the glass side. It should then be well washed and developed with a hydroquinone developer. A good formula is—

A.—Hydroquinone	1 drm.
Sulphite of soda	4 „
Acetic acid	$1\frac{1}{2}$ „
Water	5 oz.
B.—Carbonate of potassium	2 drm.
Water	$2\frac{1}{2}$ oz.

For use take 2 oz. of A and 1 oz. of B. The development should be carried on till the shadows are clear and the negative appears black or black-grey by transmitted light. The negative must now be washed for about two hours. If after redeveloping the negative shows signs of frilling, it should be immediately immersed in a weak solution of chrome alum for a few moments, which will have the effect of hardening the film. Green fog may be removed by placing the negative in a weak solution of ferric chloride (perchloride of iron) until the negative is bleached, then place in a diluted solution of oxalic acid, well wash, and redevelop with the above developer. Another formula, slightly different to the above, is to bleach the negative in a mixture of equal parts of potassium bromide (20 gr. to the ounce) and ferric chloride (20 gr. to the ounce), wash, and then redevelop with ferrous exalate developer.

Yellow fog can easily be removed by the following thiosinamin formula :—

Thiosinamin	5 drm.
Citric acid	$2\frac{1}{2}$ „
Water	1 quart.

The negative should be placed in the above, and allowed to remain till all trace of yellow is removed, and then well washed. If a piece of blue glass is placed in front of a yellow negative while printing, the resulting green light will give better prints than the yellow alone.—*The Amateur Photographer.*

Dark Room Illumination for Orthochromatic Plates.

QUESTIONS are very often asked the writer as to what are the best media to use for filtering the light into the dark room where orthochromatic plates have to be employed. The answer to these questions involves the preliminary of asking others from the questioner, the principal one being as to the kind of plates employed, and a secondary one as to the light that is to be filtered. There are distinct kinds of plates on the market which are orthochromatic, and they each one have their peculiarity, and probably each one of them has a particular light in which it is safest to develop. Absolute darkness we know can be employed with great success by skilled men, but then the illumination is *nil.* In any case, the illumination will be small compared with that used in the old wet-plate days, when it was only necessary to cut off from the light the ultra-violet, violet, and blue rays.

To ascertain the safest illumination for a brand of plates the spectrum must be brought into use, and it is better to have such a spectrum formed by sunlight or the electric light rather than by one of feebler value in the blue end of the spectrum; for it is in this region primarily that we must look for action to take place. With the spectrum of a gas flame we may think that no action has taken place in that part, and yet we may be drawing wrong conclusions because of this feeble value. Doubtless prolonged exposure would reveal the effect of the small quantity of blue filtering through, but when this region is twenty times stronger in intensity it is evident that the indications of imperfect absorption of these rays will be much more readily ascertained. The question of illumination of the dark room for plates far more difficult to manipulate than the ordinary orthochromatic plates had the writer's attention twelve years ago or more. The plates that he prepared were not only sensitive to the visible spectrum, but also to rays which lay far down beyond the red, and which are commonly, though incorrectly, called heat rays. It was only by a study of the action of the spectrum on that particular kind of silver bromide which enabled any conclusion to be arrived at. Without entering into the theory of the matter, a theory which was explained at the time, it was surmised that there ought to be a less action in the green of the spectrum than at regions on each side, and experiment showed such to be the case. There was markedly a less action, and advantage was taken of this to use a light which consisted only of those particular rays which least affected the silver compound. Of course, this was not a safe light, but it was the best that could be employed, and the development took place in the dark as far as possible, and was naturally most successful in a room in which the temperature was low. It is similar principles which should guide us in the selection of light for the various plates. With certain plates made by Lumière, for instance, he has suggested a green light (feeble) in which to work, and in examining the spectra taken on these plates there is not much doubt that the light he suggests is the best to employ, except, perhaps, a red light such as is given by the extreme end of the spectrum. These plates show the action in the green to be very feeble compared with that caused by the rays on each side. But the green employed must be the proper green, and one which will not allow the blue or red to pass. This can be obtained only by trial of combinations; evidently a dark yellow will be one medium, and the other a green, such as signal green, but the combination should be compared with the spectrum colour. We have other plates on which the spectrum has varied effects throughout its length. In all plates in which eosine or kindred colour sensitisers are used alone, there is a deficiency of action in a part of the yellow green, and the plate is not actively sensitive with the deep red. The plate which was hardest to illuminate safely was the old "Cadett spectrum plate," where we had action to the very extreme end of the spectrum, broken only by a gap of no action in the far red. The crux was to get a medium which should transmit only those rays where the gap occurred, and we believe that no very successful light fulfilling this requirement was attained. In any case, the

illumination must have been extremely feeble, probably not a five-hundredth of the light falling on the medium would have penetrated. This old form of spectrum plate has now been superseded by a newer form in which the action of the spectrum ends perhaps a little nearer the yellow than the old, and in which the extreme red band which formed the limit of the gap is absent. We are now free to use all the light from this point to the extreme red of the spectrum, and with safety, if such a light can be obtained. It is said "with safety" because it is concluded that no exposure to any "safe" light for a lengthened period will be allowed a plate previous to development, for almost any plate, orthochromatic or otherwise, is seen to feel the radiation if sufficiently prolonged. In experiments on other subjects that we have been making, we have happened to come across a medium which, it appears, might be successfully employed for the purpose of these plates, and also for other brands when combined with another medium. In some colour experiments recently made, the methyl violet was used to cut off certain rays, and on examining the absorption spectrum of a fairly strong solution it was found that only the extreme red of the spectrum was visible at one end, and violet and blue at the other. This seems to open out a promise of the dye being useful for screens. We have, it is true, the violet and blue as well, but these can be cut off by the use of a properly-selected orange, and such orange interferes scarcely at all with the intensity of the transmitted red. The point to attend to is to select an orange which will cut off that part of the blue which is nearest the red. Most oranges that can be used, it may prove, will transmit a very slight trace of this blue. We have a glass in our possession which we call "perfect orange" for the sake of a name, which allows nothing to pass, and this combined with the methyl violet gives a pure crimson red differing in quality to the light transmitted through ruby glass, which allows part of the orange of the spectrum to penetrate, unless the light be made so feeble as almost to be useless. It may be noted here that no ruby glass *per se* is absolutely safe, as a certain minute quantity of blue is transmitted, at least it is with every sample with which we are acquainted. The crimson colour of the ruby is largely due to this trace of blue.

The combination of such a color as methyl violet with an orange will give a light which, though not bright, yet is sufficient. If the reader has a spare undeveloped gelatine plate and fixes it without development, and, after well washing, immerses it in a solution of the dye to be tried (the strength being altered as required), and it then is allowed to dry, he will have a glass plate covered with the necessary colour, and it should be very nearly transparent. This method of using the colour is more convenient than that of using a solution in a cell, though this last is one which can be employed. It might be proposed to use orange dyes in a similar manner, but extreme caution must be used in the employment of such dyes. It is believed that there are very few (if any) of these dyes which do not transmit a certain amount of ultra-violet light—a light which, it need scarcely be said, though invisible, yet should be rigidly excluded. Another screen, of sulphate of quinine, for instance, would exclude this light, but the more screens there are the more confusing the experiment becomes. When proper media have been obtained, the orange should be placed next the source of light, as this will protect the violet from fading to a very great extent.—*Photography.*

W. de W. A.

Something Worth Knowing about Acetylene Gas.

By R. Moss.

It is not so very long ago since there was a general outcry against the use of acetylene gas, more particularly so when the apparatus was placed inside buildings, such as for lantern work. The insurance companies were dead against it, and refused absolutely to accept any liability whatever where the gas was used. But to-day, thanks partly to immunity from accident, and more especially to a better understanding of what acetylene is, all this is changed. The insurance offices will now allow the gas to be used without any extra premium, stipulating only that the apparatus be placed outside the main building; but even this regulation is relaxed in the case of small generators for lantern and similar purposes, such apparatus not having more than a 2 lb. charge of carbide.

Further, the Home Office regulations, about which so much nonsense has been written, are now only reasonable. They provide that large users of carbide shall obtain from the local authorities a licence under the Petroleum Act, at a cost of 5*s.* per annum. But small quantities, up to 5 lbs., can be kept anywhere without restrictions, save that it must be stored in airtight tins holding not more than 1 lb. each.

These regulations are no hardship whatever, and until the possible risks of acetylene and calcium carbide are more perfectly understood by the general public they should receive the cordial support of all who are in any way interested in the industry, and those who find acetylene of some use or advantage to themselves.

If proof were needed that acetylene gas can be produced and used with perfect safety, that proof has been furnished by the recent exhibition of apparatus in operation at the Imperial Institute, where 26 generators of different types have been in daily use for over three months, and without any mishap, let alone accident.

Again, look at the large number of small machines now being used for lantern work, and in which connection we must not forget that most of them are in the hands of inexperienced persons totally unacquainted with the gas and its nature.

It is not my intention to write of the advantages of acetylene as an ideal lantern luminant, nor shall I speak of the wonderfully little attention required when once started, because all this has already been done, well and often, in the pages of the O. M. L. J. My idea is rather to raise a warning note. A panic is usually followed by something quite as dangerous—namely, over-confidence, and as this stage has now been reached in the acetylene industry, and may lead to trouble, I purpose to endeavour to counteract this in some measure by pointing out a few of the main features and characteristics of calcium carbide and acetylene gas, which features should be noted and remembered by all users of the gas, if they would at all times be free from risk.

In the first place, *acetylene is a gas*, and as such will, in common with coal gas, oil gas, water gas, etc., when mixed with atmospheric air form an explosive if a light be brought in contact with the mixture. Therefore, never bring a light near to an apparatus if there is a smell of gas, or when the machine is opened for recharging.

Again, acetylene is much heaver than coal gas, [illegible] more pressure is needed to ensure a good stiff flame

acetylene is also a very finely divided gas, and therefore most penetrating. Consequently it is imperative that only sound pipes and connections be used. Taps should be well and frequently greased with the best Russian tallow, resin dextrine, or solid petroleum; all joints made good, and burners seated in with good red or white lead, and last, but by no means least, only best red or black rubber tubing should be allowed.

These are the main features of the gas, which must never be overlooked or forgotten, if one is to work in safety and with freedom from smell; but the apparatus needs quite as much attention and care, or possibly a good deal more.

Many lanternists choose or make a very small apparatus, and then cram the carbide-holders to the full extent to make it do the required work. This is a serious mistake. Calcium carbide when decomposed becomes slaked lime, which lime occupies nearly twice the space of the original dry carbide. Therefore ample room must be allowed for expansion, or otherwise very great heat will be evolved during the chemical action. This excessive heat produces elements that may become dangerous, and which certainly deteriorate the quality of the gas and tend to very quickly choke up the burners.

At the same time, it must be borne in mind that the chemical action which results in the disintegration of the elements of the carbide, and also the water, must, as a natural consequence, produce some considerable heat; but as up to a certain point this heat is perfectly safe, no one need be alarmed because a generator gets pretty warm. Still, there is no earthly reason why this heat should be increased beyond what is necessary, either by carelessness, by using too small a generating chamber, or too small an apparatus. The last named is a very common mistake, and not of users only, for many makers sell machines which are much too small for what they are required to do. If a generator which will safely supply one light be used for two, the heat in the generating chamber will be proportionately increased; in fact, rather more so, and the longer time during which this is continued the more nearly is risk approached.

Now, it is a fact that all, or nearly all, of the generators sold for lantern work generate considerably more heat than would be allowed as wise in an apparatus for general house-lighting; but the short time during which it is in operation makes all the difference, and renders them perfectly safe for two burners, though to work the same machine with four burners, and for the same time, would not be wise, while to use eight would be positively foolish, if not risky. Therefore, it is of the utmost importance that the machine should be of sufficient size for the utmost limit of burners which are likely to be used.

A very simple experiment will illustrate this, and also the next feature that I shall dwell upon.

Take a piece of lime (which is of the same nature as carbide), say, the size of an orange, dip a little in water, and continue to dip until the whole is slaked. Very little heat will be apparent, and the temperature of the water will not be appreciably raised. Now take another piece of lime the same size, and entirely submerge it in the same quantity of water. In a second or two it will be too hot to hold, while in the rapid process of slaking the water in contact will actually boil, and at the finish the whole of the water will be quite warm. Again, take another piece of lime, break it up into small pieces, and distribute it over the same vessel, and the heat will be very much less, as it will also if the large piece is put into a greater bulk of water. That is exactly what takes place when carbide is being converted into gas; so that it is clear that if the decomposition is to be very rapid, it must either be spread over a larger surface or brought into contact with a greater quantity of water, in order to prevent undue heating.

Another reason why the apparatus, especially the gas storage, should be sufficiently large, is to prevent any escape of gas either in working or when turned down for a short time during the entertainment. This is necessary for two reasons—first, owing to the irregular way in which the carbide is acted upon, according as it is hard or soft, in large or small pieces; and, secondly, because carbide, once wetted, must continue to give off gas until it again dries, or is decomposed. Now, if the apparatus will not hold this gas, it escapes into the room, spoils the entertainment, and most of the audience vow they will never again come where acetylene gas is being used. "That horrible stuff! it is enough to poison anybody," and I for one do not wonder at their saying so. But what we want to do is to prevent the thing happening in future, from whichever cause it may arise.

I do not pretend to have explained everything concerning the lanternist's use of acetylene; in fact, I rather suspect our esteemed Editor would scarcely allow space enough, but I think I have said enough to set a good many people thinking, and thinking in the right way, for, in my humble opinion, it is far better to find a little out for ourselves than to be given chapter and verse for it all.

I have no doubt there are many who have discarded this beautiful illuminant because of one or other of the defects enumerated, some of whom would gladly renew their acquaintance if they could only see a remedy and be sure of working it successfully, and without risk; and this I unhesitatingly assert can be done if even the few points I have mentioned are carefully studied and the suggestions acted upon.—*The Magic Lantern Journal Almanac.*

THE MADRAS OBSERVATORY ECLIPSE EXPEDITION.

(Continued from page 143.)

The night before the eclipse the final star trails for focus were taken and then the plate-holder of the photoheliograph was filled with plates and replaced on the instrument—an operation which could be done safely only in the dark—and it was past 2 A.M., on the morning of the eclipse before several of us got to bed. As soon as the sun was up the final adjustments of the 40-foot telescope were taken in hand and it was found that during the night the mound had settled and thrown the instrument out of the adjustment to a sensible extent. This was corrected, but the sinking continued and about ten minutes before totality I had with Mr. Jones's help to make another adjustment almost by guess, the success of which alone justified the attempt.

The following was the programme of the work during totality which lasted for about 103 seconds:—

Number of photograph	Kind of plate	Length of exposure	Remarks
	(a) 40-foot Telescope.		
1	Wratten and Wainwright drop shutter ...	½ second ...	Exposed exactly at beginning of totality.
2	Imperial Special rapid	1 "	
3	Wratten and Wainwright drop shutter ...	2 "	
4	Imperial Special rapid	4 "	
5	Do.	10 "	
6	Do.	5 " ...	The sun re-appeared before the end of the exposure.
7	Do.	2 "	
	(b) Photoheliograph.		
1	Wratten and Wainwright drop shutter... ...	½ second.	
2	Do. do.	1 "	
3	Edward's Isochromatic snap shots	2 "	
4	Sandell Triple III	4 "	
5	Edward's	8 "	
6	Sandell	16 "	
7	Wratten and Wainwright	8 " ...	Spoiled.
8	Edward's	4 "	
9	Sandell	2 "	
10	Edward's	1 "	
11	Sandell	Flash ...	After totality two exposures at interval of four minutes.

(c) Spectrograph.—Edward's isochromatic snap shot plates were used and on each of the two plates used it was intended to take (1) a photograph of the solar spectrum, (2) a photograph of the hydrogen spectrum, (3) an exposure for the flash, and (4) a prolonged exposure for the corona. This is the order for the first plate. For the second plate the order was to be (4), (3), (1), (2).

(d) Polariscope.—Four photographs were to be taken in the manner described in detail in Mr. Jones's report.

This programme was carried out completely as regards (a) and (b), except that programme (a) took rather more time than was expected; but this is by no means to be regretted as photographs (6) and (7) have their own special value. Plates (1) to (5) were exposed by Dr. VanGeyzel who was then relieved by Mr. Slater who had mean-while been making some exposures with a camera of his own. Programme (c) was not fully carried out, but this is the less to be regretted since spectrographic results were got elsewhere far superior to anything that could have been obtained with my instrument. Programme (d) was only half-executed owing to one of the dark slides having jammed. The development of the whole of the negatives was undertaken by Dr. VanGeyzel and much of the success of the expedition is due to the care and skill with which he carried out this important part of the work. The large plates of the 40-ft. camera, measuring 18″ × 18″, were developed on the spot—the camera itself being turned into a dark room. The plates were developed very slowly so as to ensure the greatest possible amount of detail. The development of each plate took more than an hour. The small plates were taken to Madras and developed there. All the plates used were received from the makers coated on the back with some form of antehalation backing, and none of the plates exposed during totality show any signs of halation except in the immediate neighbourhood of the large prominences and even there the halation is slight. The plates which gave by far the best results were Wratten and Wainwright's drop shutter plates and the Imperial special rapid plates.

General Phenomena.—With the exception of Dr. Evans, whose remarks are given in the appendix, none of the party had time to pay much attention to the general phenomena of the eclipse. To me the most unexpected features were the difficulty of knowing when totality commenced and the great amount of general illumination even during mid totality. Certainly it was much brighter than on a bright moonlight night. No trace of the advancing shadow was seen by any of our party, but some of them saw slight traces of the shadow bands. I noticed Venus and Mars and one or two other stars which I did not identify, but I was much too anxious about the performance of the clock and, it must be confessed, too nervous as to the success of the work to be abl[illegible] to pay much attention to anything except the [illegible]

ostat. The weather not only on the day of the eclipse but throughout the whole time that I was in Sahdol was perfect, but the change of temperature between day and night was very great. The temperature in the open (and on some nights even in the tents) usually fell to the freezing point, while the shade temperature during the day sometimes rose to as high as 80°. During the eclipse the temperature fell nearly 8° and the wind died away almost completely; but as the moon moved off from the sun, the wind again sprang up and the temperature at the end of the eclipse returned to within 1° of what it was before the eclipse began. The morning after the eclipse, three members of the party left, and the rest, with the exception of Mr. Slater who remained to help me to pack up the instruments, &c., left on the next morning.

Results.—The photographs of the corona taken with the 40-ft. telescope seem to me to be exceedingly good. The moon's diameter in these photographs is nearly 4¾ inches. The first photograph shows the very beginning of the eclipse with a range of small prominences round nearly half the sun's limb and the succeeding photographs show the various stages till the re-appearance of the sun. Even the seventh photograph taken after the sun had re-appeared shows a number of prominences and distinct traces of the corona. All the photographs are good, but No. 5 naturally shows most detail in the external corona. The brightest streamer is easily traced to about one solar diameter from the limb and it stops there only because the shutter had apparently not been fully open and cut off the light from that part of the plate. A longer exposure would of course have given greater extension, but owing to the rotation of the sun's image on the plate I did not think it safe to give more than 10^s exposure. Photograph No. 4 gives an excellent view of the inner corona.

In the photographs taken with the photoheliograph the moon's diameter is only about 0·6 inch in diameter, but the photographic intensity of the light was much greater and so, as was to be expected, the corona can be traced much farther out. Thus, in the first plate, with an exposure of only about ½ sec., the corona can be traced to a distance of about one diameter from the limb; and in the 5th plate, with an exposure of 8 secs., it can be traced to more than two diameters. No attempt has as yet been made to work up the material thus provided, and I would at present simply call attention to three things: (1) the extreme brightness of the inner corona and the rapidity with which it fades away with increased distance from the limb; (2) the evident connexion between the prominences and certain details in the corona; and (3) the striking resemblance between the coronas of 1896 and 1898.

In conclusion, I would express my thanks to Major Burrard, R.E., Lieutenant Crossthwaite, R.E., and other members of the Great Trigonometrical Survey party for their very ready help in all emergen-[illegible]; to the Mysore Government for the services of [illegible]ans and Mr. Slater; to the Bombay Government for the services of Professor Moos; and to the various members of the party through whose exertions the expedition was brought to a happy conclusion under circumstances of more than ordinary difficulty.

(Signed) C. MICHIE SMITH,
Government Astronomer.

Note.—Accompanying this report are—

(1) A plan of the camp prepared by the Great Trigonometrical Survey.

(2) A photograph showing the 40-ft. telescope and the photoheliograph.

(3) A copy on bromide paper from one of the large negatives.

(4) Copies on bromide paper from two of the small negatives.

These copies do not show nearly all the details which appear in the negatives themselves.

APPENDIX I.

REPORT by A. Y. G. CAMPBELL, Esq., I.C.S., on the photoheliograph used at Sahdol by the Madras Eclipse Expedition on January 22nd, 1898.

The photoheliograph was mounted as an equatorial telescope. On my arrival at Sahdol, the instrument had already been erected on a masonry pillar and the polar axis had been adjusted.

2. The object with which the instrument was taken to Sahdol was to obtain photographs of the corona during the total eclipse; to effect this a revolving circular plate holder, capable of holding eleven plates in addition to one ground-glass plate, was attached to the telescope in place of the eyepiece.

3. Some difficulty was experienced as the clock would not drive the telescope. This was due partly to the fact that the telescope was not properly balanced. The balance was adjusted by wrapping lead sheeting round the telescope; the clock was cleaned and some adjustments made by altering the position of the brushes of the governor of the clock; but I was not able to make the final adjustments with the regulating screw till the last half hour before totality.

4. A guider was erected by attaching a lens to the lead sheeting near the object glass and fixing a piece of oiled paper by wooden supports attached to the plate holder. This finder was of use not only in adjusting approximately the position of the telescope, but also in showing whether the position of the image of the corona had shifted during totality. The image of the corona on the paper was very faint and it is possible that the exact moment of totality could be obtained with accuracy by means of such an instrument as this finder.

5. Ten photographs of the corona were taken during totality, the times of exposure being ½, 1, 2, 4, 8, 16, 8, 4, 2, 1 seconds, respectively; and two photographs of the sun were taken soon after totality on one plate, the second exposure being made four minutes after the first, and the clock being stopped during the interval. No photograph was found on the

7th plate, but I have been informed that images were recorded on all the other plates.

6. I was assisted by Mr. F. W. Lawrence, Fellow of Trinity College, Cambridge.

7. With regard to general impressions I have nothing to add to the remarks made by other obsevers. I did not notice any sudden approach of the shadow. I saw Venus after totality.

APPENDIX II.

REPORT by Professor R. Ll. JONES, on his Polariscope observations during the total eclipse, dated 4th March 1898.

I have the honour of presenting the following report on the method used, and the attempt made by me to determine the polarisation of the coronal light during the total eclipse of the sun on January 22nd, 1898, at Sahdol.

The method used was a very simple one, and the aim was to secure photographs of the corona by means of a stereoscopic camera, each lens having in front of it a Nicol's prism—with their principal planes in defined positions. The two images on the negatives thus obtained will in general show different densities at corresponding parts if the coronal light from that part is wholly or partially polarised. Hence a comparison of the densities of the deposit on the negatives will enable one to determine the amount of polarised light from each part, and the position of its plane of polarisation.

I determined to take four photographs during totality:

(1) With the two Nicol's parallel—in order to detect any want of perfect similarity between the two systems.

(2) With the Nicol's inclined at an angle of 30°.
(3) Do. do. of 60°.
(4) Do. do. of 90°.

The exposure to be given to each plate was fixed at 4 seconds. The camera was a stereoscopic camera provided with 7-inch focus lenses, which was lent to me for the occasion. As already mentioned, a Nicol's prism was mounted in front of each lens. These prisms were fitted into brass holders which gripped the nozzles of the lens mountings. One of these Nicol's could be turned round step by step through angles of 30° each the end of each of these steps being marked by a spring attached to the holder sinking into a cavity in the nozzle. Thus the turning from one defined position to the next could be done by the sense of touch alone. A time shutter discharged by pressure served to give the exposure.

I regret to state, however, that during totality I only managed to secure the photographs numbered (1) and (2) above. I had ample time after securing these to go through the rest of my programme. But the second slide containing the plates for photographs (3) and (4) got jammed, and I was unable to get it into position for the exposures. The camera and the slides were new, so that their bearing parts had not had sufficient wearing to be in easy working order. This is to be regretted, as the negatives secured are insufficient to solve as fully as I could wish the questions connected with the polarisation mentioned above. If, however, we assume that the polarisation is radial—a matter which previous observations leave in little or no doubt—then these two sets are sufficient to determine what fraction of the total light from each part is polarised. I am taking the negatives with me to England, whither I am proceeding on furlough, where I hope to have facilities for measuring them.

For the exposures the camera was fixed in a defined position and was pointed directly to the sun's place. The camera was lent to me for the occasion, the plates were provided by the Government Astronomer, and the Nicol's prisms belonged to the Physical Laboratory of the Presidency College, Madras.

APPENDIX III.

NOTES by Dr. W. J. EVANS, on the Eclipse of the Sun, January 22nd, 1898.

Some time before totality it had become perceptibly darker and cooler, and the wind which had been strong and gusty from the N. N. E. fell to a gentle breeze from the N. E.

Just before the eclipse was total the sky changed from a pale to a deep blue.

The birds could be seen to be flying to roost, and Venus became visible.

There was no striking difference in the amount of light, when complete totality prevailed. The sky was a very dark blue except along the west and southern horizon, where there was a low line of white, due apparently to an illuminated area beyond.

It seemed evident that most of the light that illuminated the sky came from the corona.

The sky at darkest seemed many times brighter than at full moon.

The corona appeared 3 or 4 seconds before totality. There seemed to be a general diffusion of light to the east of the sun, probably due to dispersion in the atmosphere, but this disappeared almost at once after totality. While the eclipse was total, and for some time later, the wind remained of the same gentle character and blew from the same direction as was the case just before totality. It subsequently became strong and gusty as at first, and with the same directon. As the sun declined it again fell, and by 3-30 P.M. it was blowing from the same quarter, and with the same strength as during the eclipse.

MONTHLY COMPETITION.

NOVEMBER.

Subject:—"INDIAN CATTLE."

H. K. S.—Out of focus A good group of cattle but an unsatisfactory photograph.

C. S.—Three pictures with cattle in the foreground: 1 and 2 are overdeveloped in printing but 1 is a good group: 3, with cattle on the side of a tank, is the best picture of the month, though the cattle are very small.

R. V.—A good group, which might have been r— more of in the printing.

COMPETITIONS.

(Open only to Members of the Society.)

FEBRUARY	*Flowers.*
MARCH	*River Scene.*
APRIL	*Goats.*
MAY	*An Interior.*
JUNE	*A Tree.*

SUBJECT FOR SPECIAL COMPETITION IN JANUARY "*A Figure Subject.*"

RULES.

1. *Two Special Competitions shall be held, in each year, in addition to a monthly competition.*

2. *The Committee shall select the subjects for the Special Competitions, and notice of the selected subjects shall be announced in the Society's Journal in February and in July of each year. The subject for each monthly competition shall be selected two months in advance by the members present at the monthly meeting, and shall be notified in the next issue of the Society's Journal.*

3. *Pictures, &c., competing for Prizes at the Special Competitions must reach the Secretary by the last day of January and of May, and those competing at the monthly competitions must arrive in time to be shown at the monthly meeting.*

4. *Prizes will consist of Silver and of Bronze Medals, and of Certificates of Merit.*

5. *Not more than one Silver and one Bronze Medal shall be given at each Special Competition, and one Silver and one Bronze Medal may also be given at these competitions for excellence in copying, enlarging, lantern slides, or any other special branch of photography. One Silver and one Bronze Medal shall be awarded half-yearly to the exhibitors who obtain the highest and the next highest marks respectively at the monthly competitions. The number of Certificates of Merit granted at each competition is left to the discretion of the Judges.*

6. *A member may receive only one Silver and one Bronze Medal in the special, and one Silver and one Bronze Medal in the monthly, competitions, held during the same year; but should a member who has been adjudged a medal be disqualified under this rule from receiving it, he shall be given a Special Certificate instead, marked 1st or 2nd Prize.*

7. *A Special Committee of three members shall be appointed Judges by the General Committee to carry out, subject to these Rules, all arrangements connected with the competitions.*

8. *The Special Committee shall be appointed after the Annual General Meeting in January, and shall hold office for one year, and any vacancy occurring will be filled up by the General Committee.*

9. *The Special Committee shall decide upon the merits of the pictures, &c., sent in for competition, and their decision shall be final. The system of judging the monthly exhibits shall be by awarding marks, a record of which shall be kept by the Judges, the marks being totalled and the results declared half-yearly. For this purpose, only the three highest marks awarded at each competition to each competitor shall be recorded, but not the aggregate marks gained by each for a number of exhibits.*

10. *If any member of the Special Committee is a competitor, the General Committee shall appoint a non-competing member to act as Judge at that competition instead of the competing member.*

11. *No exhibit shall compete twice, but pictures, &c., already exhibited elsewhere, may be sent in for the competitions.*

12. *Lantern slides sent in for competition shall be in sets of six, and shall be judged upon the screen.*

13. *The Special Committee shall not award any Prizes or Certificates, unless they consider the exhibits to be worthy of such distinction.*

14. *Each competing exhibit shall be the entire work of the exhibitor, and when sent in shall be accompanied by a Certificate in the annexed form:—*

> *"The (1) Arranging, (2) Exposing, (3) Developing, (4) Retouching (if any), (5) Printing and (6) Trimming and Mounting were done by me without assistance."*
>
> ______________________
>
> *Member, A. P. Socy. of Madras.*

15. *All pictures for the Special Competitions shall be mounted, and may, at the competitor's option, be framed but not glazed. Those for the monthly competitions need not be mounted, but should be trimmed.*

16. *Each competing picture should have a name or title, which should indicate the nature of the subject.*

17. *No competitor shall be allowed to send in more than six pictures to compete for any particular Prize, but the same member may compete in all branches specified in Rule 5.*

18. *The pictures gaining 1st and 2nd Prizes at the half-yearly competitions, and the best pictures sent for the monthly competitions, shall, when practicable, be reproduced in the Society's Journal.*

19. *To give up-country members an opportunity of seeing the competing pictures at the special competitions, the pictures shall be circulated to all members of the Society, not residing in Madras, who apply to see them. As this arrangement can only be carried out by the cordial co-operation of the members themselves, they are expected to forward the pictures without delay to the next member, and to send one of the accompanying post-cards to the Secretary, so that by this means the progress of the pictures may be traced.*

List of Members whose Dark Rooms are available for use by Members of the Madras Amateur Photographic Society.

T. P. S. NAGARATNAM, 47, Malayappen Street, Black Town.
E. MAENNIG, Buckingham House, Tranquebar.
J. CHOKANNA, AMILDAR, Bowringpet, Mysore State.

NOTICES.

Members of the Madras Amateur Photographic Society are permitted to use this column free of charge for two insertions of each advertisement—all subsequent insertions of the same being chargeable at 2 annas a line. When an advertisement becomes liable to this charge, it will not be inserted unless a postal order or stamps to the value of the charge are previously sent, addressed to Graves, Cookson and Co., Scottish Press, Mount Road Branch, Madras. Advertisements received up to the 5th of each month will be inserted in the next issue of the Journal; those received after this date will be held over for the subsequent issue.

Subscribers, and others who are not regular dealers may make use of this column for advertisements by paying at the rate of 3 annas a line.

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Entrance Fee, Rs. 5.—Annual Subscription *for Resident Members, Rs. 15; for Up-country Members, Rs. 12. Members joining after 30th June pay Half-year's Subscription.*

Candidates for Election—*should be proposed by one member and seconded by another; and they will be ballotted for at the following meeting.*

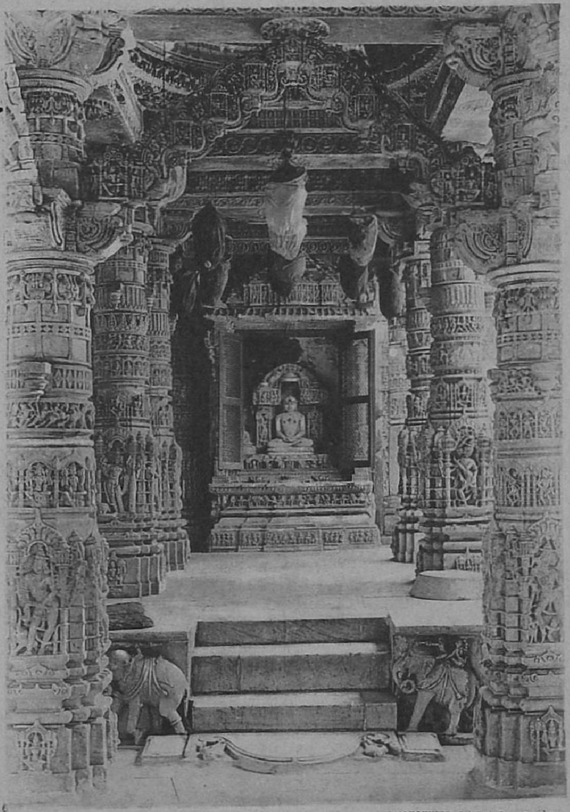
Ordinary Meetings—*of the Society are held on the first Friday of each month at 6 p.m. and members are at liberty to introduce visitors.*

Letters to the Editor—*should be addressed care of Messrs. Graves, Cookson & Co., Scottish Press, Mount Road Branch, Madras.*

Letters to the Honorary Secretary—*should be addressed to S. Jackson, Esq., care of Messrs. Binny & Co., Madras.*

Letters to the Honorary Treasurer and Remittances—*should be addressed V. G. Lynn, Esq., care of Messrs. Best & Co., Madras.*

Communications regarding the issue of the Journal—*should be addressed to the Publishers.*



PHOTOTYPIE S.A.D.A.G. GENÈVE

MOUNT ABU, SHRINE IN VIMALA-SAH'S TEMPLE

Negative by F. Dunsterville, Madras